and the remainder internally, as is done with transparencies. On the ceiling are six 7½-foot disks with fluorescent paintings of such objects as the Orion nebula, the Whirlpool nebula, and a globular cluster.

While looking out over an imaginary landscape of Mercury, the visitor experiences a sensation of great temperature change (caused by a battery of infrared lamps), timed to match the apparent rising and setting of the sun in the planet's libratory regions. His weight, one third of that on Earth, is also automatically indicated.

Other features of the gallery are an Echo satellite communications model, an eight-foot projected solar system orrery, and a space model of the Big Dipper.

A large lecture hall and smaller classand workrooms are part of the museum structure. In the surrounding area other buildings will be erected, one of them already nearing completion, for supporting activities. Actual celestial objects are viewed by amateurs at the observatory of the Boothe Astronomical Society in nearby Stratford, where there is a 16-inch Cassegrain reflector.

A forerunner of the present museum is Bridgeport's Wonder Workshop, begun in 1951 by the Junior League. This children's museum was soon overcrowded, and in 1958 a survey committee explored the possibilities for a larger institution. The Wonder Workshop will eventually become the junior division at Ninety Acres Park.

For two years now, the National Science Foundation has supplied funds for a mobile science exhibit in a converted house trailer. This brings astronomy and other sciences right to the doorsteps of schools and community centers in each of the nine towns.

On entering the rear of the mobile unit, the visitor finds himself inside a space capsule, where a model astronaut reclines in his contour seat watching his instrument panel. Combined with a rocket-motor cross section are six exhibits explaining why scientists want to explore space. Other displays concern space travel, the earth and sun, and the universe of stars and nebulae.

Most striking of all is a miniature solar system, suspended overhead in the plastic dome at the forward end of the trailer. Here illuminated with ultraviolet light, all the planets, including Pluto, circle the sun at their correct relative speeds. There can be no mistaking their identities, for this orrery is conveniently within reach of the lecturer's pointer.

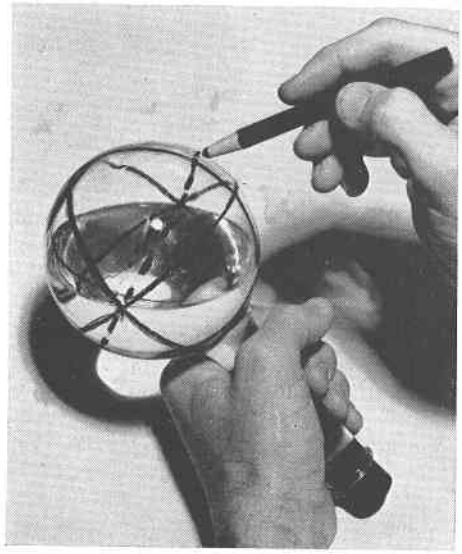
An Aid to Study of the Heavens

AMONG the most difficult topics for beginning astronomy students are the relationships between the several sets of celestial coordinates. Daily and yearly changes in the sky add further complications. To assist in presenting these problems, the teacher usually uses globes and other training aids.

But these devices are often costly, and students would benefit more if they could use inexpensive "replicas" for home study. All that is needed is a standard 500-milliliter round-bottom flask, available in chemistry storerooms, a rubber stopper to fit, and china-marking grease pencils.

The illustrations show how the flask may be filled halfway, so that the water surface represents the local horizon plane for an observer at a latitude corresponding to the angle at which the flask is tilted. This is one way of holding the flask; another is shown in Skilling and Richardson's *Astronomy,* where the neck of the flask points to the elevated celestial pole, and a rod carries a ball representing the earth in the center of the water horizon.

For constellation study, a flask can be marked as in the picture below, which appeared in the January, 1949, SKY AND TELESCOPE. There Sister M. Ignatia pointed out that Gaylord Johnson had suggested this device in *Popular Science Monthly* for November, 1934. Much larger spherical flasks can be used to make serviceable celestial globes at fairly low cost.



This flask has been marked with the grease pencil to indicate the celestial equator and the ecliptic (dashed), as well as four hour circles (solstitial and equinoctial colures). Pencils of different colors may be used to distinguish these and other features, and to show the sun, planets, and stars. Photo by J. E. McDonald.

The stars on this eight-inch glass flask have been permanently etched with hydrofluoric acid. There are also declination circles at 10-degree intervals, and 24 hour circles. The globe was prepared by Lawrence and Anne Thomas, Dearborn, Michigan, for Marygrove College. Photo by Elaine Cousino.

A five-liter round-bottom flask (costing about five dollars) yields a globe nine inches in diameter, while one of 12 liters has an 11-inch diameter. An attractive celestial globe can be made by using colored nail-polish dots to show the major constellations, as well as the chief celestial circles, if a good deal of patient care is spent. This is a good project for one or two amateur astronomers in a high school science club.

J. E. McDONALD
University of Arizona